



# Advanced Hybrid Particulate Collector (AHPC) Technology

*Development, Demonstration, and Commercialization*

## What is the AHPC?

The AHPC is a pollution control technology that removes microscopic particles (fine particulate) from exhaust gases of coal-fired power plants, incinerators, and cement production facilities. Fine particulate emissions contribute to visibility-reducing haze and have been linked to human health problems. The AHPC is a novel new concept that combines key characteristics of conventional fine-particle control technology in a new way leading to a more effective and lower-cost option for fine-particle control.



*Stan Miller, EERC senior research manager, with the AHPC being demonstrated at Otter Tail Power Company's Big Stone Plant in South Dakota.*

## What is the EERC's role in AHPC development?

The Energy & Environmental Research Center (EERC) has been active in research on fine-particle emissions for over 20 years. In 1995, the EERC was awarded a competitive grant by the U.S. Department of Energy and W.L. Gore & Associates, Inc., to develop a concept invented by EERC engineer Stan Miller to combine the strengths of conventional fine-particle control technologies to achieve extremely high levels of fine-particle control. Since 1995, work at the EERC has focused on understanding and further development of this technology. Work at the EERC has been at the laboratory and pilot scale and currently includes a field demonstration unit located in Big Stone, South Dakota. To date, total contract value to the EERC for development is \$4,347,930.

## Who owns the AHPC technology?

The EERC formed the Energy & Environmental Research Center Foundation in 1992 to facilitate the commercialization of EERC-developed technologies. This 501(c)(3) corporation has title to the technology. A U.S. patent has been granted for this technology. Patents have been applied for in Europe, Canada, China, Japan, India, and Korea. Based on continuing work to enhance the AHPC technology, a second patent application has been submitted for consideration in the United States and is in preparation for the countries noted above.

This technology has been licensed to W.L. Gore & Associates exclusively for selected countries and applications. W.L. Gore has sublicensed this technology to the Swiss company, ELEX, for applications in the energy and mineral processing industries in Europe, India, and China. ELEX has been given the right to install an AHPC unit on the Otter Tail Power Company Big Stone Power Plant in Milbank, South Dakota.

Negotiations are under way with additional original equipment manufacturers (OEM) for licenses to the AHPC technology in U.S. and Canadian markets.



## How good is the technology?

Removal efficiencies for fine particles of over 99.99% have been achieved by the AHPC technology both at the demonstration facilities of the EERC and the field demonstration unit at the coal-fired power plant at Big Stone, South Dakota. That means the air leaving the fine-particle control device is cleaner than the air entering the power plant. Amazingly, the cost of this technology is less than the cost of conventional, less effective options currently used for fine-particle control. Based on these results, the AHPC technology is the best and least expensive option for controlling fine-particle emissions.

## What is the market for the AHPC technology?

Control of fine particles from industrial plants represents a very large market worldwide. Currently, the size of this market is estimated at \$5 billion annually. Stricter future regulations of fine-particle emissions in the United States could open an even larger market in the future for the AHPC technology.

## For more information, please contact:

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